

Form PIO-1449
(REV. 8-83)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

APPLICATION NO.

CSDL 1-490XX

08/841,224

APPLICANT MARC S. WEINBERG, ET AL.

FILING DATE
April 29, 1997

GROUP
2856

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

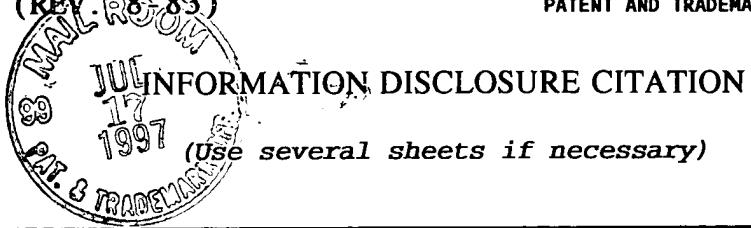
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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE*
	3	0	5	3	0	9	5	9/62	Koril et al.	73	504	_____
	3	2	5	1	2	3	1	5/66	Hunt et al.	73	505	_____
	3	3	7	0	4	5	8	2/68	Dillon	73	141	_____
	3	9	1	3	0	3	5	10/75	Havens	331	107 R	_____
	4	0	4	4	3	0	5	8/77	Oberbeck	324	154 R	_____
	4	2	3	4	6	6	6	11/80	Gursky	428	573	_____
	4	3	2	1	5	0	0	3/82	Paros et al.	310	321	_____
	4	3	8	1	6	7	2	5/83	O'Connor et al.	73	505	_____
	4	4	0	6	9	9	2	9/83	Kurtz et al.	338	2	_____
	4	4	1	1	7	4	1	10/83	Janata	204	1 T	_____
	4	4	4	7	7	5	3	8/84	Ochiai	310	312	_____

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER							DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION		
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		55	1	2	1	7	2	8	9/80	Japan	H03H9	19, 05			X
		58	1	3	6	1	2	5	8/83	Japan	H03H9	17, 13			X
		59	0	3	7	7	2	2	3/84	Japan	H03H9	17, 05			X
		59	1	5	8	5	6	6	9/84	Japan	H01L29	84			X
		61	1	4	4	5	7	6	7/86	Japan	G01P15	09			X

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		Barth, P.W. et al., "A Monolithic Silicon Accelerometer With Integral Air Damping and Overrange Protection",
		1988 IEEE, pgs. 35-38.
		Boxenhorn, B., et al., "An Electrostatically Rebalanced Micromechanical Accelerometer," AIAA Guidance,
		Navigation and Control Conference, Boston, August 14-16, 1989, pgs. 118-122.
		Boxenhorn, B., et al., "Micromechanical Inertial Guidance System and its Application", Fourteenth Biennial Guidance
		Test Symposium, Vol. 1, October 3-5, 1989, pgs. 113-131.

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		4	4	6	8	5	8	4						
		4	4	7	8	0	7	6	10/84	Bohrer	73	204	—	—
		4	4	7	8	0	7	7	10/84	Bohrer et al.	73	204	—	—
		4	4	8	3	1	9	4	11/84	Rudolf	73	517 R	—	—
		4	4	8	4	3	8	2	11/84	Kawashima	29	25.35	—	—
		4	4	9	0	7	7	2	12/84	Blickstein	361	281	—	—
		4	4	9	5	4	9	9	1/85	Richardson	343	5 DD	—	—
		4	4	9	9	7	7	8	2/85	Westhaver et al.	74	5 F	—	—
		4	5	0	2	0	4	2	2/85	Wuhrl et al.	340	568	—	—
		4	5	2	2	0	7	2	6/85	Sulouff et al.	73	765	—	—
		4	5	2	4	6	1	9	6/85	Staudte	73	505	—	—

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		62	0	7	1	2	5	6					YES	NO
		62	0	7	1	2	5	6	8/87	Japan	H01L27	06	—	X
		2	1	8	3	0	4	0	5/87	Great Britain	G01F	15/02	X	—
		62	2	2	1	1	6	4	9/87	Japan	H01L29	84	—	X
		63	1	6	9	0	7	8	7/88	Japan	H01L29	84	—	X

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		Boxenhorst, B., et al., "Monolithic Silicon Accelerometer", TRANSDUCERS '89, June 25-30, 1989, pgs. 273-277.
		—
		Boxenhorst, B., et al., "A Vibratory Micromechanical Gyroscope", AIAA Guidance, Navigation and Control Conference, Minneapolis, August 15-17, 1988, pgs. 1033-1040.
		—
		Howe, R., et al., "Silicon Micromechanics: Sensors and Actuators on a Chip", IEEE Spectrum, July 1990, pgs. 29-35.
		—

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X	4	5	3	8	4	6	1	9/85	Juptner et al.		73	505	_____
	4	5	8	5	0	8	3	4/86	Nishiguchi		177	229	_____
	4	5	9	2	2	4	2	6/86	Kempas		74	5 F	_____
	4	5	9	6	1	5	8	6/86	Strugach		74	5 F	_____
	4	5	9	8	5	8	5	7/86	Boxenhorn		73	505	_____
	4	6	0	0	9	3	4	7/86	Aine et al.		357	26	_____
	4	6	1	9	0	0	1	10/86	Kane		455	192	_____
	4	6	2	8	2	8	3	12/86	Reynolds		331	68	_____
	4	6	2	9	9	5	7	12/86	Walters et al.		318	662	_____
	4	6	3	9	6	9	0	1/87	Lewis		331	96	_____
R	4	6	4	4	7	9	3	2/87	Church		73	505	_____

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		DOCUMENT NUMBER							DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION		
													YES	NO	
X		92	0	1	9	4	1		2/92	WO International Patent	G01P	9/04			X
X		93	0	5	4	0	1		3/93	WO International Patent	G01P	9/04	X		

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

		Moskalik, L., "Tensometric Accelerometers with Overload Protection", Meas. Tech. (USA), Vol. 22, No. 12,
		Dec. 1979 (publ. 5/80), pgs. 1469-1471.
		Nakamura, M., et al., "Novel Electrochemical Micro-Machining and Its Application for Semiconductor Acceleration Sensor IC", Digest of Technical Papers (1987), Institute of Electrical Engineers of Japan, pgs. 112-115.
		Petersen, K.E., et al., "Micromechanical Accelerometer Integrated with MOS Detection Circuitry", IEEE, Vol. ED-29
		No. 1 (January 1982), pgs. 23-27.

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER							DATE	NAME		CLASS	SUBCLASS	FILING DATE IF APPROPRIATE*
<i>RM</i>		4	6	5	1	-5	6	4	3/87	Johnson et al.		73	204	/
		4	6	5	3	3	2	6	3/87	Danel et al.		73	517 R	/
		4	6	5	4	6	6	3	3/87	Alsenz et al.		340	870.3	/
		4	6	6	5	6	0	5	5/87	Kempas		29	434	/
		4	6	7	0	0	9	2	6/87	Motamedi		156	643	/
		4	6	7	1	1	1	2	6/87	Kimura et al.		73	505	/
		4	6	7	4	1	8	0	6/87	Zavracky et al.		29	622	/
		4	6	7	4	3	1	9	6/87	Muller et al.		73	23	/
		4	6	7	9	4	3	4	7/87	Stewart		73	517 B	/
		4	6	8	0	6	0	6	7/87	Knutti et al.		357	26	/
<i>RM</i>		4	6	9	9	0	0	6	10/87	Boxenhorn		73	517 AV	/

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													YES	NO	

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

<i>RM</i>	Petersen, Kurt E., et al., "Silicon as a Mechanical Material", <u>Proceedings of the IEEE</u> , Vol. 70, No. 5, May 1982 pgs. 420-457.
<i>RM</i>	"Quartz Rate Sensor Replaces Gyros", <u>Defense Electronics</u> , November 1984, pg. 177.
<i>RM</i>	Rosen, Jerome, "Machining In the Micro Domain", <u>Mechanical Engineering</u> , March 1989, pgs. 40-46.

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<i>RS</i>		4	7	0	5	6	5	9	11/87	Bernstein et al.	264	29.6	/
		4	7	0	6	3	-7	4	11/87	Murkami	437	--	225
		4	7	1	2	4	3	9	12/87	North	74	84 R	/
		4	7	3	6	6	2	9	4/88	Cole	73	517 R	/
		4	7	4	3	7	8	9	5/88	Puskas	310	316	/
		4	7	4	4	2	-4	8	5/88	Stewart	73	505	/
		4	7	4	4	2	4	9	5/88	Stewart	73	505	/
		4	7	4	7	3	1	2	5/88	Herzl	73	861.38	/
		4	7	5	0	3	6	4	7/88	Kawamura et al.	73	510	/
<i>RS</i>		4	7	6	4	2	4	4	8/88	Chitty et al.	156	630	/
		4	7	7	6	9	2	4	10/88	Delapierre	156	647	/

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													YES	NO

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

<i>RS</i>	Teknekron Sensor Development Corporation, article entitled "Micro-Vibratory Rate Sensor", 1080 Marsh Road, Menlo Park, CA 94025, 2 pages, undated.
<i>RS</i>	Bryzek, Janusz et al., "Micromachines on the March", IEEE Spectrum, May 1994, pgs. 20-31.
<i>RS</i>	IEEE Robotics & Automation Soc, in coop. w/ASME Dynamic Systems & Control Div., "Micro Electro Mechanical Systems, An Investigation of Micro Structures, Sensors, Actuators, Machines and Systems", IEEE Cat. #93CH3265-6, Library of Congress #92-56273, Ft. Lauderdale, Fl. 2/7-10/93.

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		4	7	8	3	2	3	7	11/88	Aine et al.	437	15	
		4	7	8	9	8	0	3	12/88	Jacobsen et al.	310	309	
		4	7	9	2	6	7	6	12/88	Hojo et al.	250	231 GY	
		4	8	0	5	4	5	6	2/89	Howe et al.	73	517 AV	
		4	8	0	8	9	4	8	2/89	Patel et al.	331	4	
		4	8	5	1	0	8	0	7/89	Howe et al.	156	647	
		4	8	5	5	5	4	4	8/89	Glenn	200	61.45 R	
		4	8	6	9	1	0	7	9/89	Murakami	73	517 R	
		4	8	8	2	9	3	3	11/89	Petersen et al.	73	517 R	
		4	8	8	4	4	4	6	12/89	Ljung	73	505	
		4	8	9	0	8	1	2	1/90	Chechile et al.	248	674	

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XBS		4	8	9	3	5	0	9	1/90	MacIver et al.	73	517 AV	_____
		4	8	9	9	5	8	7	2/90	Staudte	73	505	_____
		4	9	0	0	9	7	1	2/90	Kawashima	310	361	_____
		4	9	~1	6	5	2	0	4/90	Kurashima	357	71	_____
		5	0	0	1	3	8	3	3/91	Kawashima	310	367	_____
		5	0	1	6	0	7	2	5/91	Greiff	357	26	_____
		5	0	2	5	3	4	6	6/91	Tang, et al.	361	283	_____
		5	2	4	1	8	6	1	9/93	Hulsing, II	73	505	2/8/91
		5	2	3	3	8	7	4	8/93	Putty et al.	73	517 AV	8/19/91
XBS		5	2	2	6	3	2	1	7/93	Varnham et al.	73	505	5/17/91
		5	2	0	5	1	7	1	4/93	O'Brien et al.	73	517B	1/11/91

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		5	1	3	8	8	8	3	8/92	Paquet et al.	73	504	
		5	0	9	4	5	3	7	3/92	Karpinski, Jr.	356	350	
		5	0	9	0	8	0	9	2/92	Ferrar	356	350	
		4	9	8	1	3	5	9	1/91	Tazartes et al.	356	350	
		4	9	2	9	8	6	0	5/90	Hulsing, II et al.	310	366	
		4	9	2	2	7	5	6	5/90	Henrion	73	517 R	
		4	8	9	8	0	3	2	2/90	Voles	73	505	
		4	8	3	4	5	3	8	5/89	Weeks et al.	356	350	
		4	7	6	1	7	4	3	8/88	Wittke	364	484	
		4	7	3	5	5	0	6	4/88	Pavlath	356	350	
		4	7	2	7	7	5	2	3/88	Peters	73	517 AV	

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<i>RL</i>		4	5	9	0	8	0	1	5/86	Merhav	73	510	_____
	1	4	4	1	4	8	5	2	11/83	McNeill	73	765	_____
		4	3	3	6	7	1	8	6/82	Washburn	73	517 B	_____
		4	1	5	5	2	5	7	5/79	Wittke	73	497	_____
		4	1	4	4	7	6	4	3/79	Hartzell, Jr.	73	497	_____
		4	1	2	2	4	4	8	10/78	Martin	343	7.7	_____
		3	6	9	6	4	2	9	10/72	Tressa	343	180	_____
	R E	3	3	4	7	9			12/90	Juptner et al.	73	505	_____
	R E	3	2	9	3	1			5/89	Staudte	73	505	_____
		5	0	6	0	0	3	9	10/91	Weinberg et al.	357	26	_____
	<i>RL</i>	5	1	9	5	3	7	1	3/93	Grieff	73	505	2/14/90

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		5	2	0	3	2	0	8	4/93	Bernstein	73	505	4/29/91
		5	2	1	6	4	9	0	6/93	Greiff, et al.	73	517 R	8/3/90
		4	9	0	1	5	8	6	2/90	Blake et al.	73	862.59	
		5	0	3	8	6	1	3	8/91	Takenaka et al.	73	510	
		4	8	1	5	4	7	2	3/89	Wise et al.	128	675	
		4	8	8	1	4	1	0	11/89	Wise et al.	73	724	
		5	0	5	5	8	3	8	10/91	Wise et al.	340	870	
		5	0	1	3	3	9	6	5/91	Wise et al.	156	628	
		4	3	4	2	2	2	7	8/82	Petersen et al.	73	510	
		4	6	2	1	9	2	5	11/86	Masuda et al.	356	350	

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R. MOLLER

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9-14-98 R

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.